SELF-PROPELLED POOL CHEMICAL DISPENSER

FIELD OF THE INVENTION

[0001] This invention relates to the field of pools, which require the dispersement of chemicals for the purpose of sanitation or purification. More specifically this patent deals with the even distribution and controlled dispersement of chemicals in pools, ponds and waterways. The most common usage of this invention will be in the field of dispersing chemicals evenly throughout a swimming pool with an ornamental self-propelled device.

[0002] In many areas, this unique device could rectify the ever-growing problem of mosquitoes and contamination in stagnant ponds and waterways.

BACKGROUND OF THE INVENTION

[0003] This invention describes a new and unique self-propelled pool chemical dispenser that will maneuver itself through the water while evenly dispersing a given amount of chemicals into a pool, pond or waterway. Chemicals for swimming pools are in a variety of forms. For instance, chlorine, which is commonly used in swimming pools, is available in granules, large and small tablets and in concentrated liquid form. Conventionally each of these forms is differently packaged. Some of the chemicals are hand-scattered or introduced by elaborate automatic mechanical apparatus or by complicated floating release mechanisms. Many of the chlorine and other pool chemical distribution systems are unsightly when exposed in the pool area. The chemical distributors thereby detract from the decor of the pool in addition to being difficult to

maintain because of their complicated operation. Additionally, these chemical distribution systems have been designed specifically for the use in swimming pools only and are not self-propelled or would not be usable in other environments like ponds or waterways.

[0004] The self-propelled pool chemical dispensing invention is therefore directed to distribute chemicals in a variety of configurations that will harmonize with the decor of the swimming pool and also acts to distribute the chemicals evenly throughout the pool water, thereby eliminating many of the difficulties set forth in the following patents.

[0005] Patent No. 3,607,103 of Adolph Klefer describes a buoyant container for dispensing a solid chemical composition while floating on the surface of a liquid that has a compartment for confining the chemical composition arranged with respect to the center of buoyancy so that the attitude of the container when empty is substantially different than the attitude of the container when the compartment is filled.

[0006] This patent describes a floating chemical dispenser but does not have the capability of moving itself through the water or the ability of being used in other environments.

[0007] Patent No. 3,677,711 of Willian T. Bond discloses a float ring that contains cavities each filled with a soluble pool chemical such as chlorine tablets or granules. A tube cap protrudes an adjustable amount from each cavity of the float ring and an aperture of each tube is in the protruded portion. Each tube cap is adjustable in its float ring cavity to change the area of the tube cap aperture effectively open to pool water so as to alter the rate at which the chemical dissolves into the pool.

[0008] This patent describes another floating chemical dispenser but does not have the capability of moving itself through the water or the ability of being used in other environments.

[0009] Patent No. 4,630,634 of Isao Sasaki teaches of a chlorine dispenser for spas that includes a tubular container disposed within a sleeve having one closed end. The container and sleeve form a chamber for receiving the solid chlorine source. The sleeve contains apertures for providing access by water to the solid chlorine source. The sleeve is axially movable along the container, and a locknut engages the container to secure a given position of the sleeve. The container is attached to a foam-filled float, which ensures positive buoyancy of the dispenser in water. The sleeve is ballasted to ensure that the dispenser is vertically disposed in the water.

[0010] Again this patent describes another floating chemical dispenser but does not have the capability of moving itself through the water or the ability of being used in other environments.

[0011] Patent No. 4,217,331 of Charles T. Schuab additionally describes a float dispenser that is adapted to be floated in a body of water such as a swimming pool, to dispense in the water a soluble solid material carried by the dispenser. The dispenser includes a flotation element from which an apertured receptacle is supported below the water. The receptacle is divided into separate compartments. A single tablet of water soluble material is located within each compartment so that the tablet is segregated from the other tablets to expose to maximum surface areas to the surrounding water. The dispenser may be made of two identical integral half sections of molded plastic material, which are locked together to lock the tablets within

their individual compartments. After dissolution of the tablets, the dispenser may be discarded and replaced with another.

[0012] This patent describes still another floating chemical dispenser. The floating chemical dispensers have a tendency to float to the same location and not to circulate around the complete pool surface

[0013] None of the foregoing prior art teaches or suggests the particular unique features of the self-propelled pool chemical dispenser and thus clarifies the need for further improvements in the devices that can distribute chemicals in pools, ponds and waterways.

[0014] In this respect, before explaining at least one embodiment of the invention in detail it is to be understood that the invention is not limited in its application to the details of construction and to the arrangement of the components set forth in the following description or illustrated in the drawings. The invention is capable of other embodiments and of being practiced and carried out in various ways. Also, it is to be understood that the phraseology and terminology employed herein are for the purpose of description and should not be regarded as limiting.

SUMMARY OF THE INVENTION

[0015] The principal object of the self-propelled pool chemical dispenser is to create a means to evenly distribute and control the dispersement of chemicals in pools, ponds and waterways.

[0016] Another object is to create an ornamental pool chemical dispenser that is self-propelled and will maneuver itself through the water.

[0017] Another object is to create a self-propelled pool chemical dispenser that will carry a photovoltaic energy cell to generate electricity to maintain a charge in the battery.

[0018] Another object is to create a self-propelled pool chemical dispenser that can function in a variety of unique configurations.

[0019] Another object is to create a self-propelled pool chemical dispenser that will have a cavity that will hold a variety of sizes and kinds of chemicals for dispersement.

[0020] Another object is to create a self-propelled pool chemical dispenser that will have one or more adjustable fins that will control the direction or size of the circle that the device will travel within.

[0021] And still another object is to create a self-propelled pool chemical dispenser that will have an adjustment to control the amount of chemicals dispensed into the water.

[0022] Yet another object is to create a self-propelled pool chemical dispenser that can navigate freely or be tethered on a line to an anchor and rotate within a confined circular area.

[0023] A further object is to create self-propelled pool chemical dispensers that can dispense chemicals in stagnant pools, ponds or waterways to decontaminate the water or rid the area of mosquitoes.

[0024] A final object of this invention is to add a new and unique device to the area of pool supplies and chemical dispensers.

[0025] The preferred embodiment of this invention will take the shape of a fish but it must be understood that it may be created in a variety of different shapes and still fall within the scope of this patent. This device has been designed to disperse chemicals for the purpose of sanitation or purification of water in swimming poor and spas as well as in ponds and waterways. One of the unique features of this device allows it to propel itself through the water with an electric motor powered by a battery that in some cases may be recharged by photovoltaic power cells on the exterior surface. The action of propelling the device through the water by the means of moving a tail back and forth will minimize the device being tangled by weeds or other articles in the water when used in ponds and waterways.

[0026] As it propels itself through the water, water is taken in the front through a water intake orifice that in some cases will be in the configuration of the mouth of a fish and exit through water exit orifices that in some cases will be in the configuration of the gills of a fish. The water passing through the internal cavity of the head or frontal element will dissolve the water-soluble chemicals and disperse them through the water exit orifices. The amount of dissolved chemicals can be controlled by one or more sliding doors within the internal cavity of the head or frontal element. The stability of the device is maintained by the means of a flotation unit at the top of the body and ballast at the bottom. Direction of the device can be either maintained or altered by the means of dorsal and pectoral fins at the top and bottom of the device. As it floats higher in the water it displays more of the dorsal fin when the chemicals have been depleted.

[0027] The device is compact, aesthetically attractive, long lasting, easily filled with chemicals and precisely adjustable, and is effective and efficient. The self-

propelled pool chemical dispenser can be used with soluble source materials of diverse manufacture, thus giving the user freedom to select the source material he deems best for his needs. The self-propelled pool chemical dispenser is especially useful with source chemicals provided in tablet or stick form.

[0028] With respect to the above description then, it is to be realized that the optimum dimensional relationships for the parts of the invention, to include variations in size, materials, shape, form, function and manner of operation, assembly and use, are deemed readily apparent and obvious to one skilled in the art, and all equivalent relationships to those illustrated in the drawings and described in the specification are intended to be encompassed by the present invention. Therefore, the foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly, all suitable modifications and equivalents may be resorted to, falling within the scope of the invention.

[0029] These together with other objects of the invention, along with the various features of novelty, which characterize the invention, are pointed out with particularity in the claims annexed to and forming a part of this disclosure. For a better understanding of the invention, its operating advantages and the specific objects attained by its uses, reference should be made to the accompanying drawings and descriptive matter in which there are illustrated preferred embodiments of the invention. There has thus been outlined, rather broadly, the

more important features of the invention in order that the detailed description thereof that follows may be better understood, and in order that the present contribution to the art may be better appreciated. There are additional features of the invention that will be described hereinafter and which will form the subject matter of the claims appended hereto.

BRIEF DESCRIPTION OF THE DRAWINGS

[0030] The accompanying drawings, which are incorporated in and form a part of this specification, illustrate embodiments of the invention and together with the description, serve to explain the principles of this invention.

[0031] **FIG. 1** depicts a side elevation of the preferred embodiment of the self-propelled pool chemical dispenser, shown as a conventional freshwater fish, sectioned through the body area with the head or frontal element exploded away;

[0032] **FIG. 2** depicts an end view of the central body area of the self-propelled pool chemical dispenser;

[0033] **FIG. 3** depicts a section through the head portion of the self-propelled pool chemical dispenser;

[0034] **FIG. 4** depicts a perspective view of the prior art, namely a passive pool chemical dispenser;

[0035] **FIG. 5** depicts the self-propelled pool chemical dispenser configured as a submarine;

[0036] **FIG. 6** depicts the self-propelled pool chemical dispenser configured as a shark;

[0037] **FIG. 7** depicts the self-propelled pool chemical dispenser configured as a larger fish;

[0038] **FIG. 8** depicts the self-propelled pool chemical dispenser configured as an Orca whale; and

[0039] **FIG. 9** depicts the self-propelled pool chemical dispenser configured is a basic cylindrical shape to be tethered to a weight on the bottom to go in a confined circular pattern.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0040] Referring now to the drawings, wherein similar parts of the self-propelled pool chemical dispenser **10** are identified by like reference numerals, there is seen in **FIG. 1** a side elevation of the preferred embodiment of the self-propelled pool chemical dispenser **10** shown as a conventional freshwater fish **12**. The device has been sectioned through the body **14** with the head or frontal element **16** exploded away, where the chemicals to dispense are stored. The body **14** has been shown with the left side **18** removed and the front wall **20** shown in section to display the flotation unit **22**, the sealed electric motor **24** with wires going to the on/off switch **26** and the sealed battery compartment **28**. The battery **30** is held in place between a spring **32** and a threaded cap **34**. The battery compartment **28** is sealed by the means of an o-ring **36** under the threaded cap **34**. Below the sealed battery compartment **28** is a ballast unit **37** to work in combination with the flotation unit **22** to maintain the desired attitude of the device. The sealed electric motor **24** rotates a shaft **38** turning a rotational actuator **40** with an actuator pin **42** that translates within a slot **44** to make the tail **46** of the self-propelled pool

chemical dispenser **10** move back and forth in a natural swimming motion of the freshwater fish **12**. The primary dorsal fin **48** is located on the upper back of the body **14** and can be used to determine the level of chemicals left in the device by how far it rises above the surface of the water. A secondary dorsal fin **50** will be located further back on the body **14** and may be permanently positioned to direct the device in a specific circular pattern or may be flexible to be bent into the desired position to direct the movement of the device. At the bottom **52** of the device will be a pectoral fin **54** that may also be permanently positioned to direct the device in a specific circular pattern or may be flexible to be bent into the desired position to direct the device through the water. A tether attachment **56** is located on the bottom **52** of the body **14** of the device with an orifice **58** in which to tie a tether line **60**.

[0041] The head or frontal element **16** will have one or more water entry orifices **62** configured to look like the mouth of the freshwater fish **12** to allow water to enter the internal cavity **64** and pass by the chemicals and through the water exit orifices **66** configured to look like gills **68** of the freshwater fish **12**. A conventional locking device will have one or more flexible tabs **70** with a nib **72** that will releaseably lock within a cavity **74** in the body **14** of the freshwater fish **12**.

[0042] **FIG. 2** depicts an end view of the central body **14** of the self-propelled pool chemical dispenser **10** in the shape of a freshwater fish **12**. This view shows the front wall **20** with the threaded cap **34** in place.

[0043] **FIG. 3** depicts a section through the head or frontal element **16** of the self-propelled pool chemical dispenser **10** defining the internal cavity **64** where the chemicals are placed. The exit orifice **66** configured to look like gills **68** have a sliding

door **76** with orifices **78** to match the exit orifices **66** so that when the sliding door **76** is adjusted within the tracks **80** the size of the controlled exit orifice opening **82** is reduced. The perimeter **84** of the head or frontal element **16** has a stepped section **86** to fit within the outer perimeter **88** of the body **14**.

[0044] **FIG. 4** depicts a perspective view of the prior art of a pool chemical dispenser **90** that floats vertically in the pool and is primarily affected by the pool currents and the wind over the surface. These devices are generally effective in small pools and spas.

[0045] **FIG. 5** depicts the self-propelled pool chemical dispenser **10** configured as a submarine **92** driven by a conventional propeller **94** in the conventional manner with the frontal element **96** exploded away. The frontal element **96** will have one or more entry orifices **98** for the water to enter and a plurality of water exit louvers **100**. The submarine **92** will require both front and back stabilizing fins **102** to aide in stabilizing and steering the device and is shown with a photovoltaic energy cell **104** on the top side **106**.

[0046] **FIG. 6** depicts the self-propelled pool chemical dispenser configured as a shark **108** with photovoltaic energy cells **104** on the sides.

[0047] **FIG. 7** depicts the self-propelled pool chemical dispenser **10** configured as a larger saltwater fish **107** with an enlarged head or frontal element **16** to carry a larger amount of chemicals.

[0048] **FIG. 8** depicts the self-propelled pool chemical dispenser **10** configured as an Orca or killer whale **108**.

[0049] **FIG. 9** depicts the self-propelled pool chemical dispenser **10** configured as a basic cylindrical shape **110** with photovoltaic energy cells **104** on the top and sides. This device will be tethered to a weight **112** on the bottom by the means of tether line **60** to go in a confined circular pattern.

[0050] The self-propelled pool chemical dispenser **10** shown in the drawings and described in detail herein disclose arrangements of elements of particular construction and configuration for illustrating preferred embodiments of structure and method of operation of the present invention. It is to be understood, however, that elements of different construction and configuration and other arrangements thereof, other than those illustrated and described may be employed for providing a self-propelled pool chemical dispenser **10** in accordance with the spirit of this invention, and such changes, alternations and modifications as would occur to those skilled in the art are considered to be within the scope of this invention as broadly defined in the appended claims.

[0051] Further, the purpose of the foregoing abstract is to enable the U.S. Patent and Trademark Office and the public generally, and especially the scientists, engineers and practitioners in the art who are not familiar with patent or legal terms or phraseology, to determine quickly from a cursory inspection the nature and essence of the technical disclosure of the application. The abstract is neither intended to define the invention of the application, which is measured by the claims, nor is it intended to be limiting as to the scope of the invention in any way.